BENEFITS AND OVERVIEW OF THE ELECTRONIC REPORTING TOOL (ERT)

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ABSTRACT

The Measurement Policy Group (MPG) in EPA's Office of Air Quality Planning and Standards has been working for many years to improve the quality of emissions factors by incorporating emissions data collected during well-conducted and well-documented source tests. MACTEC E&C, Inc. (MACTEC) has been working with MPG to develop the Emissions Reporting Tool (ERT) to facilitate the collection, quality assurance, and reporting of source test results. ERT provides a method to electronically create and submit stationary source sampling test plans to a regulatory agency, and, after approval, to collect, calculate and submit the test results as an electronic report to the regulatory agency. ERT also provides a way for the regulatory agency to send an export file to EPA to be imported into webFIRE for use in calculating emission factors. We will present an overview of ERT and the benefits to the users. These benefits include standardized reporting, streamlined test plans, and improved emission factors.

INTRODUCTION

Source test reports begin with the preparation of a test plan by the source or the source's contractor which is then sent to the regulatory agency for approval. Details such as information about the facility and name of the testing company, the test locations and test methods to be used, as well as process information are included in the test plan. Upon approval, the testing company, generally with an observer from the regulatory agency, performs the test, records the onsite information and lab analysis results. This information is used to perform the emission calculations and prepare a lengthy paper test report. The regulatory agency receives the test report and does a detailed assessment of the validity of the report. The assessment includes a manual check of the calculations as well as a determination if the included support documentation is sufficient to support the submitted results.

Historically, EPA has used the source test reports to develop emission factors. EPA obtained or conducted test reports supporting the NSPS/NESHAP. EPA also obtained test reports recovered from state files. Test reports were also supplied by industry. EPA reviewed and assessed the quality of the source test reports for compliance with the applicable methods for the pollutants tested and for the completeness of the supporting documentation of the test procedures. EPA performed an evaluation of the accuracy of the calculations and checked the indication of representativeness of the process, process operating conditions, control equipment, and control operation. EPA categorized the source tested by SCC, pollutant tested, and the controls employed. The test report information was summarized and the quality assessment of the background report was documented. This complete process typically took 4 to 8 hours per test report.

ERT was created to provide an electronic process for preparing, reviewing, and submitting source test reports as well as providing the results to EPA to provide improved emission factors. The areas of opportunity that ERT provides include improved coordination and information flow between sources, testers, reviewing agencies, and EPA; reduction of duplicative work; standardized reports; improved documentation; improved and standardized report QA; and integration with multiple program data flows, such as emission factors development, emissions inventory, and compliance and enforcement.

EMISSIONS REPORTING TOOL OVERVIEW

What is ERT

ERT is a Microsoft Access desktop application that is an electronic alternative for paper reports to document source tests and test plans for 19 of EPA's emissions measurement methods for stationary sources.

The test methods supported by ERT Version 3 currently include: Methods 1 through 4, Method 3A, Method 5, Method 6C, Method 7E, Method 10, Method 17, Method 25A, Method 26A, Method 29, Method 101, Method 101A, Method 201A, Method 202, CT Method 39, and CT Method 40. The pollutants quantified by these test methods include: Filterable Particulate Matter, Condensable Particulate Matter, Filterable PM₁₀, Filterable PM_{2.5}, Carbon Monoxide, Chlorine, Chloride, Hydrogen Chloride, Nitrogen Oxides, Sulfur Dioxide, Metals (Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Manganese, Mercury, Nickel, Phosphorus (yellow or white), Selenium, Silver, Thallium and Zinc), and total organic compounds (as Carbon, Ethane, Methane, Propane).

ERT replaces the time-intensive manual preparation and transcription of stationary source emissions test plans and reports currently performed by contractors for emissions sources and the time-intensive manual quality assurance evaluations and documentation performed by State agencies. The ERT provides a format that:

- highlights the need to document the key information and procedures required by existing EPA Federal test methods;
- facilitates coordination among the source, the test contractor, and the regulatory agency in planning and preparing for the emissions test;
- provides for consistent criteria to quantitatively characterize the quality of the data collected during the emissions test;
- standardizes the reports;
- and provides for future capabilities to electronically exchange information in the reports with facility, state or Federal data systems.

In addition to improving the content and quality of source emissions test reports, the ERT is designed to:

- reduce the workload associated with manual transcription of information and data contained in the report;
- reduce the resources required to store and access the reports, and;
- reduce redundant efforts in using the data for multiple purposes.

How ERT is used by the Source

The source fills out the test plan and test report areas of ERT to create a project data set for the source test. Support documentation such as flow diagrams and lab data is included in the project data set. ERT includes fields that have been designated as required by the EPA and/or regulatory agency. This ensures that this information will be included with the test report. ERT has flexible data entry screens where data can be entered from pick lists as well as free form text fields. ERT has the ability to print the test plan and the test report. The project data file for the test is transmitted to the agency through email and an FTP site. Future plans are to include the EPA's Central Data Exchange (CDX) as a transport method.

Test Plan

- Source testers enter test plan information including:
 - Facility / Tester
 - Permit / SCC / Process
 - Locations / Methods
 - Audit / Calibrations
 - Schedule / Signatures
 - Attachments (Diagrams, Calibrations, Other supporting documentation)

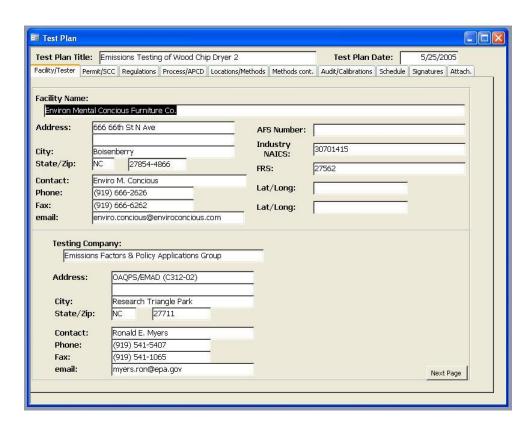


Figure 1 - ERT Test Plan Facility/Tester Screen

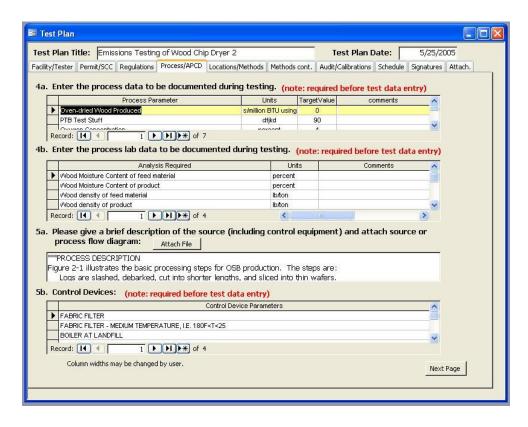


Figure 2 - ERT Test Plan Process/APCD Screen

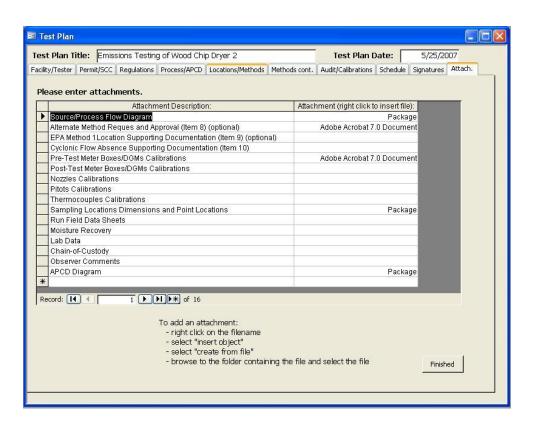


Figure 3 - ERT Test Plan Attachments Screen

Field Data Collection

- Use Excel spreadsheet application used by many contractors
 - Modified to extract critical information into the ERT Access application
- ERT application duplicates calculations in spreadsheet program using equations from FR methods

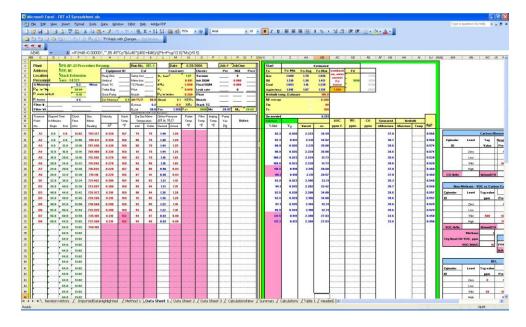


Figure 4 - ERT Field Data Spreadsheet

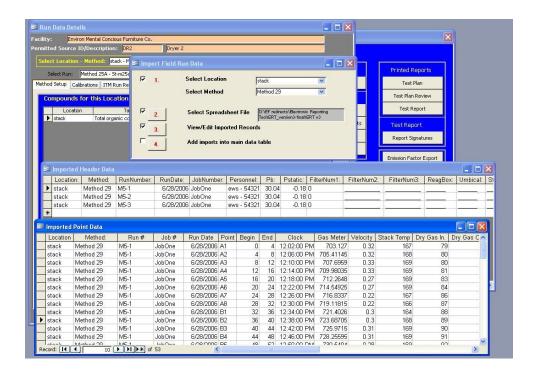


Figure 5 - ERT Field Data Import Screen

Test Report Data

- Field test information is only stack gas information
- Laboratory data added to report
- Process data added to report



Figure 6 - ERT Test Report Sampling/Stack Data Results Screen

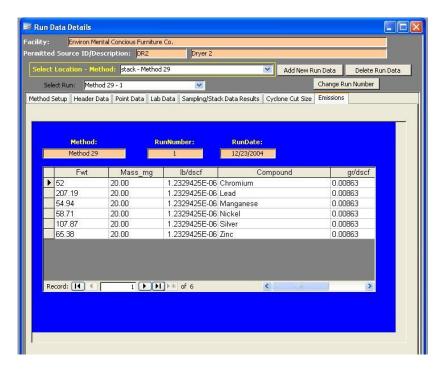


Figure 7 - ERT Test Report Emissions Screen

How ERT is used by EPA

Information deemed critical to EPA and the other regulatory agencies can be established as required fields in ERT. This will ensure that the test plans and test reports produced by ERT contain the required information. The review of the test plan and report is accomplished through a set checklist in ERT. Each checked data item can receive a comment to explain what is deficient and what is required. ERT produces an XML export file that the regulatory agencies can send to EPA for inclusion in webFIRE for use in improving emission factors. ERT also has the ability to export other information that may be used in EPA or other regulatory agency systems.

Test Plan Review

- Provides test contractor feedback on information needed prior to test
- Allows state/local agency evaluation of proposed test program
- Notifies state/local agency of test date and special access requirements
- Allows for linked and improved documentation of acceptance or comments

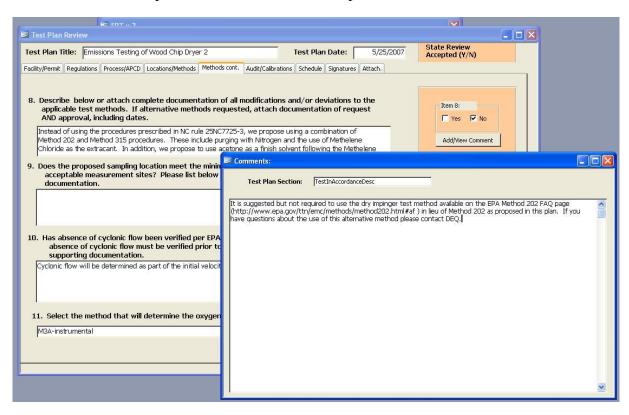


Figure 8 - ERT Test Plan Review Comments Screen

Test Report Data Quality Evaluation

- Evaluates primarily the availability of documentation of critical instrument calibration and field data elements
- Evaluates compliance with published FR test method requirements

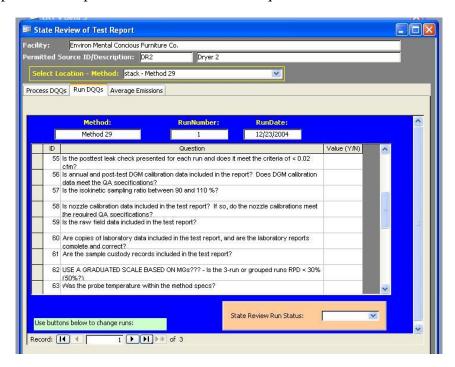


Figure 9 - ERT Test Report Data Quality Questions Screen

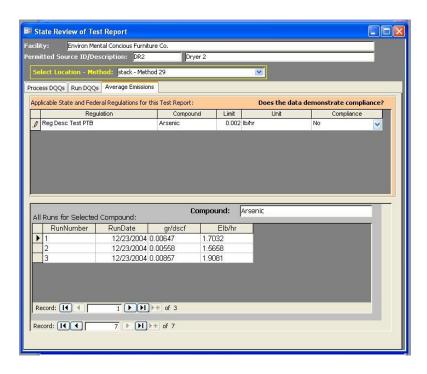


Figure 10 - ERT Test Report State Review Screen

ERT Benefits to the Source

- Streamlined Test Plans Standardized test plans will shorten the State review and approval time allowing for quicker start for the source test.
- Standard Report for all States Source testers working in different States can use ERT for test plans and test reports, eliminating the need for different report formats and requirements for each State.

ERT Benefits to the States

- **Standardized Reporting** Reports from different testers are currently in different formats. ERT will standardize all reports to allow for easier review. This means the same information will be reported by all sources.
- "Step through QA" ERT steps the reviewer through the QA process. This provides a standard way of reviewing all reports which can greatly reduce the QA review time. ERT also allows the quality of the test report to be assessed quantitatively.
- **Better Emission Factors** Because the purpose of the ERT is to provide data for webFIRE emission factor calculations, the more ERT is used, the more data will be available and the more representative and complete the factor calculations.

Possible ERT Data Applications

Source test data collected in ERT has several possible uses. These include:

- Improved emissions factors by importing the exported project data set data into webFIRE
- Improve test report assessment for compliance evaluation through use of ERT's data quality questions
- Initiator of non-EF data flow
 - Population of internal data systems
 - AIRS/AFS submissions
 - Emissions inventory submissions
- Use for Emissions Standards data
 - State limits (non-Federal, SIP)
 - Federal NSPS, MACT, NSR/PSD

Planned Improvements

- ANPR suggesting requirement for electronic submission (Part 60, 61 & 63 test reports)
- Identify additional data fields for export routine
- Develop data definition and formatting standards for exported data fields
- Develop capability for ERT submission through CDX
- Evaluate methods to make ERT CROMERR compliant
- Expand test methods submitted by ERT

CONCLUSIONS

Using ERT to produce source test reports can replace the resource intensive manual manipulation of paper test reports. ERT provides a single location for planning, calibration, field sampling, field inspection, and data quality assessment documentation. Data critical to EPA and other regulatory agencies are highlighted and required in ERT, increasing the chance the data are provided in the test reports. Coordination and communication between the sources and regulatory agencies is facilitated and enhanced by the transmission of the test report project data set created by ERT, potentially reducing the number of resubmitted plans and reports. Sources and agencies benefit from having standardized reports, reducing the time for review and approval of source tests. EPA and emission factor stakeholders benefit from having an efficient way to collect source test information which can be used for creating improved emission factors.

ERT is available for download at www.epa.gov/ttn/chief/ert/ert_tool.html.

KEY WORDS

Source Test

Emission Factors